IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A substrate holder comprising:

wafer heating assembly comprising:

a quartz holding device having a wafer support surface ~~comprising quartz~~ having quartz raised portions thereon, which are configured to support a wafer, and a backside surface opposing the wafer support surface, the holding device comprising a plurality of recesses each having a middle portion extending along the wafer support surface, and end portions that extend to openings in said backside surface;

a plurality of heating units each mounted in a respective recess, wherein each heating unit comprises:

a quartz tube extending along said middle and end portions of the respective recess and having a carbon wire heater comprising a carbon fiber bundle, the carbon wire heater having a middle section sealed within the tube and opposing ends that extend to an exterior of the tube, wherein at least one of the tube or an opposing end of the carbon wire heater extends through one of said openings on the backside surface of the holding device, and

connecting terminals coupled to the opposing ends of the carbon wire heater;

a quartz thermal barrier adjacent to said backside of the holding device, the thermal barrier comprising ~~a thermally variable material and~~ a reflecting surface facing the plurality of heating units;

a metal cooling unit coupled to the back side of the holding device such that said thermal barrier is interposed between the cooling unit and the heating unit, said cooling unit configured to cool said wafer;

a quartz coupling unit coupled to the cooling unit and configured to mount the substrate holder to a processing chamber and having a lower thermal conductivity than the heating assembly and cooling unit.

Claim 2 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a substantially straight tube mounted in a substantially straight recess in the holding device.

Claim 3 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a curved tube mounted in a curved recess in the holding device.

Claim 4 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a circular tube mounted in a circular recess in the holding device.

Claim 5 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a square tube mounted in a square recess in the holding device.

Claim 6 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a rectangular tube mounted in a rectangular recess in the holding device.

Claim 7 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises an elliptical tube mounted in an elliptical recess in the holding device.

Claim 8 (Original): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a U-shaped tube mounted in a recess in the holding device.

Claim 9 (Original): The wafer heating assembly as claimed in claim 8, wherein the recess comprises a U-shape.

Claim 10 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a plurality of segments, each segment comprising a substantially straight tube having a carbon wire heater comprising a carbon fiber bundle sealed therein, and a connecting terminal coupled to each end of each carbon wire heater, each substantially straight tube being mounted in a substantially straight recess in the holding device.

Claim 11 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a plurality of segments, each segment comprising a substantially straight tube having a carbon wire heater comprising a carbon fiber bundle sealed therein, and a connecting terminal coupled to each end of each carbon wire heater, the plurality of segments being mounted in a square recess in the holding device.

Claim 12 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a plurality of segments, each segment comprising a substantially straight tube having a carbon wire heater comprising a carbon fiber bundle sealed therein, and a connecting terminal coupled to each end of each carbon wire heater, the plurality of segments being mounted in a rectangular recess in the holding device.

Claim 13 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein at least one of said heating units comprises a plurality of segments, each segment comprising a curved tube having a carbon wire heater comprising a carbon fiber bundle sealed therein, and a connecting terminal coupled to each end of each carbon wire heater, the plurality of segments being mounted in a curved recess in the holding device.

Claim 14 (Withdrawn): The wafer heating assembly as claimed in claim 13, wherein the curved recess comprises a circular shape.

Claim 15 (Withdrawn): The wafer heating assembly as claimed in claim 13, wherein the curved recess comprises an elliptical shape.

Claim 16 (Canceled).

Claim 17 (Original): The wafer heating assembly as claimed in claim 1, further comprising a temperature sensor coupled to the holding device.

Claim 18 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein the heating unit further comprises transitional elements coupled to respective ends of the

tube, and a sealing terminal portion coupled to the transitional elements, each connecting terminal being coupled to at least one sealing terminal portion.

Claim 19 (Withdrawn): The wafer heating assembly as claimed in claim 18, wherein the tube and the transitional elements are formed from a single piece of material.

Claim 20 (Withdrawn): The wafer heating assembly as claimed in claim 19, wherein the single piece of material comprises a quartz glass tube.

Claim 21 (Withdrawn): The wafer heating assembly as claimed in claim 18, wherein the tube is formed from a first piece of material and the transitional elements are formed from a second piece of material.

Claim 22 (Withdrawn): The wafer heating assembly as claimed in claim 21, wherein at least one of the first piece of material or the second piece of material or both the first and second pieces of material comprises a quartz glass tube.

Claim 23 (Withdrawn): The wafer heating assembly as claimed in claim 18, wherein the sealing terminal portion comprises means for sealing end portions of the transitional elements.

Claim 24 (Withdrawn): The wafer heating assembly as claimed in claim 18, wherein the sealing terminal portion comprises means for sealing end portions of the tube.

Claim 25 (Withdrawn): The wafer heating assembly as claimed in claim 18, wherein the heating unit further comprises endpoint elements coupled to opposite ends of the carbon wire heater, the endpoint elements comprising compressed wire carbon members, and the carbon wire heater being buried in the compressed wire carbon members.

Claim 26 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein the carbon wire heater comprises a carbon wire, the carbon wire comprising at least one bundle of carbon fibers, each bundle comprising at least 300 carbon fibers each having a diameter of between 5 and 15 micrometers.

Claim 27 (Withdrawn): The wafer heating assembly as claimed in claim 26, wherein the carbon wire further comprises surface fluffing.

Claim 28 (Withdrawn): The wafer heating assembly as claimed in claim 26, wherein ash content in the carbon fiber is less than 10 ppm.

Claim 29 (Original): The wafer heating assembly as claimed in claim 1, further comprising a cover coupled to the holding device.

Claim 30 (Previously Presented): The wafer heating assembly as claimed in claim 29, wherein the plurality of raised portions are provided on the cover.

Claim 31 (Original): The wafer heating assembly as claimed in claim 30, wherein at least one raised portion comprises a temperature sensor.

Claim 32 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein the wafer support comprises a plurality of raised portions on the holding device.

Claim 33 (Withdrawn): The wafer heating assembly as claimed in claim 32, wherein at least one raised portion comprises a temperature sensor.

Claim 34 (Withdrawn): The wafer heating assembly as claimed in claim 1, wherein the wafer support comprises a quartz wafer holder having at least three support points.

Claim 35 (Withdrawn): The wafer heating assembly as claimed in claim 1, further comprising:

an additional heating unit comprising:

an additional tube having a carbon wire heater comprising a carbon fiber bundle and sealed within the additional tube, and

a connecting terminal coupled to opposing ends of the carbon wire heater of the additional heating unit; and

an additional mounting assembly coupled to the additional holding device and configured to position the additional heating unit above the wafer support.

Claim 36 (Withdrawn): The wafer heating assembly as claimed in claim 1, further comprising:

an additional heating unit comprising:

an additional tube having a carbon wire heater comprising a carbon fiber bundle and sealed within the additional tube, and

a connecting terminal coupled to opposing ends of the carbon wire heater of the additional heating unit; and

an additional mounting assembly coupled to the additional holding device and configured to position the additional heating unit substantially around the wafer support.

Claim 37 (Withdrawn): The wafer heating assembly as claimed in claim 1, further comprising:

an additional heating unit comprising:

an additional tube having a carbon wire heater comprising a carbon fiber bundle and sealed within the additional tube, and

a connecting terminal coupled to opposing ends of the carbon wire heater of the additional heating unit;

an additional holding device coupled to the additional tube; and

an additional mounting assembly coupled to the additional holding device and configured to position the additional heating unit above the wafer support

Claim 38 (Withdrawn): The wafer heating assembly as claimed in claim 1, further comprising:

an additional heating unit comprising:

an additional tube having a carbon wire heater comprising a carbon fiber bundle and sealed within the additional tube, and a connecting terminal coupled to opposing ends of the carbon wire heater of the additional heating unit;

an additional holding device coupled to the additional tube; and

an additional mounting assembly coupled to the additional holding device and configured to position the additional heating unit substantially around the wafer support.

Claim 39 (Original): The wafer heating assembly as claimed in claim 1, further comprising:

a second holding device having a plurality of second recesses, the second holding device having a second wafer support configured to support a second wafer;

a second plurality of heating units, wherein at least one of the second plurality of heating units comprises:

a tube having a carbon wire heater comprising a carbon fiber bundle and sealed within the tube, each tube being mounted in a recess in the second holding device, and

a connecting terminal coupled to opposing ends of the carbon wire heater; and

a second mounting assembly coupled to the second holding device and configured to mount the second holding device to the processing chamber.

Claim 40 (Withdrawn): A method of processing a substrate, the method comprising:

positioning the substrate on a substrate holder in a processing chamber, wherein the substrate holder comprises a plurality of heating units, each heating unit comprising:

a tube and a carbon wire heater having a carbon fiber bundle and sealed within the tube, each tube being mounted in a recess in the substrate holder, and

a connecting terminal coupled to opposing ends of the carbon wire heater; and

performing a Rapid Thermal Process on the substrate, wherein a DC supply is coupled to each connecting terminal and DC power is rapidly applied to the carbon wire heater.

Claim 41 (Canceled).

Claim 42 (Withdrawn): A method of processing a substrate comprising independently controlling multiple carbon wire heater zones with independent temperature sensors to provide a multiple zone, single wafer heater system with rapid response to each independent zone, said control being tunable to minimize wafer warpage from rapid thermal changes.

Claim 43 (Withdrawn): A method of processing a substrate comprising using carbon wire heater elements as a substrate support to minimize thermal mass and permit thermal changes rapid enough for processing control by increments of rapid thermal cycles.

Claim 44 (Withdrawn): A method of processing a substrate comprising using carbon wire heater elements on opposing sides of the substrate, said heater elements having multiple independent heater zones and rapid thermal response from either heater element and one or more heater zones.

Claim 45 (Previously Presented): The wafer heating assembly as claimed in claim 1, further comprising alternate cooling mechanisms corresponding to the carbon wire heater elements to increase the speed of the thermal response, the cooling mechanisms configured to flow gas for cooling, or other, thermally compatible coolant material or fluids.